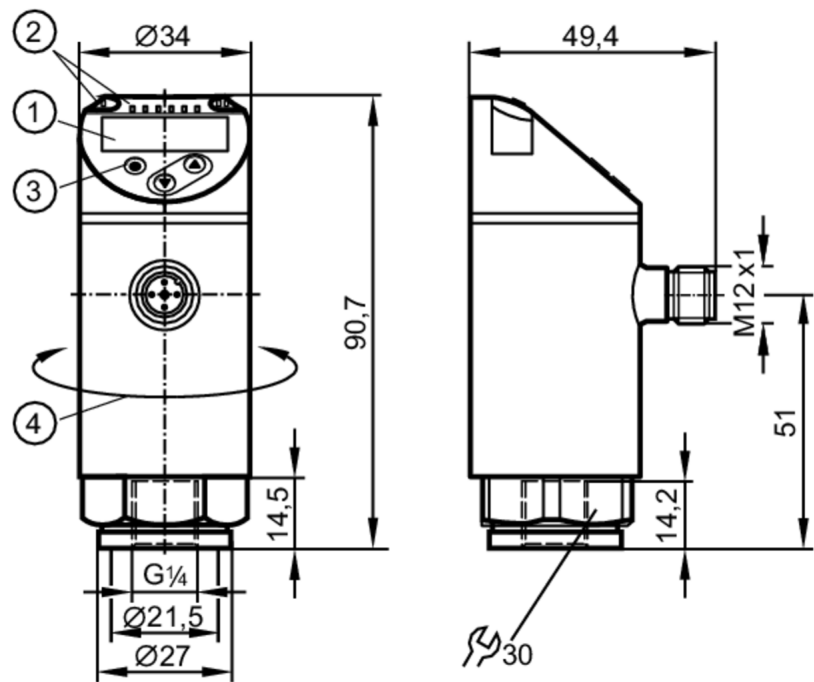


PN3096



Pressure sensor with display

PN-2,5-RER14-MFRKG/US/ IV



- 1 alphanumeric display 4-digit red/green
- 2 LEDs Display unit / Switching status
- 3 Programming button
- 4 upper part of the housing can be rotated 345°



Product characteristics

|                              |                                                           |               |              |             |
|------------------------------|-----------------------------------------------------------|---------------|--------------|-------------|
| Number of inputs and outputs | Number of digital outputs: 1; Number of analog outputs: 1 |               |              |             |
| Measuring range              | 0...2.5 bar                                               | 0...2500 mbar | 0...36.2 psi | 0...250 kPa |
| Process connection           | threaded connection G 1/4 Internal thread M6 I            |               |              |             |

Application

|                         |                                            |          |          |
|-------------------------|--------------------------------------------|----------|----------|
| System                  | gold-plated contacts                       |          |          |
| Measuring element       | ceramic-capacitive pressure measuring cell |          |          |
| Application             | for industrial applications                |          |          |
| Media                   | liquids and gases                          |          |          |
| Medium temperature [°C] | -25...80                                   |          |          |
| Min. bursting pressure  | 50 bar                                     | 725 psi  | 5000 kPa |
| Pressure rating         | 20 bar                                     | 290 psi  | 2000 kPa |
| Vacuum resistance       | -1000 mbar                                 | -0.1 MPa |          |
| Type of pressure        | relative pressure                          |          |          |

Electrical data

|                                 |                            |  |  |
|---------------------------------|----------------------------|--|--|
| Operating voltage [V]           | 18...30 DC; (to SELV/PELV) |  |  |
| Current consumption [mA]        | < 35                       |  |  |
| Min. insulation resistance [MΩ] | 100; (500 V DC)            |  |  |
| Protection class                | III                        |  |  |
| Reverse polarity protection     | yes                        |  |  |
| Power-on delay time [s]         | 0.3                        |  |  |



## Pressure sensor with display

PN-2,5-RER14-MFRKG/US/ /V

|                                                      |                                                                                           |                |              |             |
|------------------------------------------------------|-------------------------------------------------------------------------------------------|----------------|--------------|-------------|
| Integrated watchdog                                  | yes                                                                                       |                |              |             |
| Inputs / outputs                                     |                                                                                           |                |              |             |
| Number of inputs and outputs                         | Number of digital outputs: 1; Number of analog outputs: 1                                 |                |              |             |
| Outputs                                              |                                                                                           |                |              |             |
| Total number of outputs                              | 2                                                                                         |                |              |             |
| Output signal                                        | switching signal; analog signal; IO-Link; (configurable)                                  |                |              |             |
| Electrical design                                    | PNP                                                                                       |                |              |             |
| Number of digital outputs                            | 1                                                                                         |                |              |             |
| Output function                                      | normally open / closed; (configurable)                                                    |                |              |             |
| Max. voltage drop switching output DC [V]            | 2.5                                                                                       |                |              |             |
| Permanent current rating of switching output DC [mA] | 150; (200 (...60 °C) 250 (...40 °C))                                                      |                |              |             |
| Switching frequency DC [Hz]                          | < 170                                                                                     |                |              |             |
| Number of analog outputs                             | 1                                                                                         |                |              |             |
| Analog current output [mA]                           | 4...20                                                                                    |                |              |             |
| Max. load [Ω]                                        | 500                                                                                       |                |              |             |
| Analog voltage output [V]                            | 0...10                                                                                    |                |              |             |
| Min. load resistance [Ω]                             | 2000                                                                                      |                |              |             |
| Short-circuit protection                             | yes                                                                                       |                |              |             |
| Type of short-circuit protection                     | yes (non-latching)                                                                        |                |              |             |
| Overload protection                                  | yes                                                                                       |                |              |             |
| Measuring/setting range                              |                                                                                           |                |              |             |
| Measuring range                                      | 0...2.5 bar                                                                               | 0...2500 mbar  | 0...36.2 psi | 0...250 kPa |
| Factory setting / CMPT = 2                           |                                                                                           |                |              |             |
| Set point SP                                         | 0.02...2.5 bar                                                                            | 0.4...36.2 psi | 2...250 kPa  |             |
| Reset point rP                                       | 0.01...2.49 bar                                                                           | 0.2...36 psi   | 1...249 kPa  |             |
| Min. difference between SP and rP                    | 0.02 bar                                                                                  | 0.2 psi        | 2 kPa        |             |
| In steps of                                          | 0.01 bar                                                                                  | 0.2 psi        | 1 kPa        |             |
| Status_B High Resolution / CMPT = 3                  |                                                                                           |                |              |             |
| Set point SP                                         | 0.02...2.5 bar                                                                            | 0.3...36.3 psi | 2...250 kPa  |             |
| Reset point rP                                       | 0.01...2.49 bar                                                                           | 0.1...36.1 psi | 1...249 kPa  |             |
| Min. difference between SP and rP                    | 0.02 bar                                                                                  | 0.2 psi        | 2 kPa        |             |
| In steps of                                          | 0.01 bar                                                                                  | 0.1 psi        | 1 kPa        |             |
| Accuracy / deviations                                |                                                                                           |                |              |             |
| Switch point accuracy [% of the span]                | < ± 0,5                                                                                   |                |              |             |
| Repeatability [% of the span]                        | < ± 0,1; (with temperature fluctuations < 10 K)                                           |                |              |             |
| Characteristics deviation [% of the span]            | < ± 0,25 (BFSL) / < ± 0,5 (LS); (BFSL = Best Fit Straight Line; LS = limit value setting) |                |              |             |
| Hysteresis deviation [% of the span]                 | < ± 0,25                                                                                  |                |              |             |
| Long-term stability                                  | < ± 0,05; (per 6 months)                                                                  |                |              |             |



## Pressure sensor with display

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|                                    |                        |                                  |
|------------------------------------|------------------------|----------------------------------|
|                                    | [% of the span]        |                                  |
| Temperature coefficient zero point |                        | $< \pm 0,2; (-0...80\text{ °C})$ |
|                                    | [% of the span / 10 K] |                                  |
| Temperature coefficient span       |                        | $< \pm 0,2; (-0...80\text{ °C})$ |
|                                    | [% of the span / 10 K] |                                  |

## Reaction times

|                                   |      |        |
|-----------------------------------|------|--------|
| Response time                     | [ms] | $< 3$  |
| Delay time programmable dS, dr    | [s]  | 0...50 |
| Damping process value dAP         | [s]  | 0...4  |
| Damping for the analog output dAA | [s]  | 0...4  |
| Max. response time analog output  | [ms] | 3      |

## Software / programming

|                           |                                                                                                                         |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Parameter setting options | hysteresis / window; normally open / closed; switch-on/ switch-off delay; Damping; Display unit; current/voltage output |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------|

## Interfaces

|                            |                                                                     |                 |
|----------------------------|---------------------------------------------------------------------|-----------------|
| Communication interface    | IO-Link                                                             |                 |
| Transmission type          | COM2 (38,4 kBaud)                                                   |                 |
| IO-Link revision           | 1.1                                                                 |                 |
| SDCI standard              | IEC 61131-9                                                         |                 |
| SIO mode                   | yes                                                                 |                 |
| Required master port class | A                                                                   |                 |
| Process data analog        | 1                                                                   |                 |
| Process data binary        | 1                                                                   |                 |
| Supported DeviceIDs        | <b>Type of operation</b>                                            | <b>DeviceID</b> |
|                            | Factory setting / CMPT = 2                                          | 432             |
|                            | Status_B High Resolution / CMPT = 3                                 | 616             |
| Note                       | For further information please see the IODD PDF file at "Downloads" |                 |

## Factory setting / CMPT = 2

|                                 |                                                                              |                   |
|---------------------------------|------------------------------------------------------------------------------|-------------------|
| Profiles                        | Smart Sensor: Process Data Variable; Device Identification, Device Diagnosis |                   |
| Min. process cycle time         | [ms]                                                                         | 2.3               |
| IO-Link resolution pressure     | 0.01 bar                                                                     | 0.001 MPa         |
| IO-Link process data (cyclical) | <b>Function</b>                                                              | <b>bit length</b> |
|                                 | pressure                                                                     | 14                |
|                                 | binary switching information                                                 | 1                 |
| IO-Link functions (acyclical)   | application specific tag                                                     |                   |

## Status\_B High Resolution / CMPT = 3

|                             |                                                                                            |            |
|-----------------------------|--------------------------------------------------------------------------------------------|------------|
| Profiles                    | Smart Sensor ED2: Digital Measuring Sensor (0x000A), Identification and Diagnosis (0x4000) |            |
| Min. process cycle time     | [ms]                                                                                       | 3          |
| IO-Link resolution pressure | 0.001 bar                                                                                  | 0.0001 MPa |

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## Pressure sensor with display

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| IO-Link process data<br>(cyclical) | Function                     | bit length |
|------------------------------------|------------------------------|------------|
|                                    | pressure                     | 16         |
|                                    | device status                | 4          |
|                                    | binary switching information | 1          |
| IO-Link functions (acyclical)      | application specific tag     |            |

| Operating conditions |      |              |
|----------------------|------|--------------|
| Ambient temperature  | [°C] | -25...80     |
| Storage temperature  | [°C] | -40...100    |
| Protection           |      | IP 65; IP 67 |

| Tests / approvals            |                                                                                       |                     |
|------------------------------|---------------------------------------------------------------------------------------|---------------------|
| EMC                          | DIN EN 61000-6-2                                                                      |                     |
|                              | DIN EN 61000-6-3                                                                      |                     |
| Shock resistance             | DIN EN 60068-2-27                                                                     | 50 g (11 ms)        |
| Vibration resistance         | DIN EN 60068-2-6                                                                      | 20 g (10...2000 Hz) |
| MTTF                         | [years]                                                                               | 226                 |
| UL approval                  | UL approval number                                                                    | J004                |
| Pressure equipment directive | sound engineering practice; can be used for group 2 fluids; group 1 fluids on request |                     |

| Mechanical data               |      |                                                                                            |
|-------------------------------|------|--------------------------------------------------------------------------------------------|
| Weight                        | [g]  | 235                                                                                        |
| Housing                       |      | tubular                                                                                    |
| Dimensions                    | [mm] | Ø 34 / L = 90.7                                                                            |
| Material                      |      | stainless steel (1.4404 / 316L) stainless steel (1.4404 / 316L); PBT+PC-GF30; PBT-GF20; PC |
| Materials (wetted parts)      |      | stainless steel (1.4404 / 316L); Al2O3 (ceramics); FKM                                     |
| Min. pressure cycles          |      | 100 million                                                                                |
| Tightening torque             | [Nm] | 25...35; (recommended tightening torque; Depends on lubrication, seal and pressure rating) |
| Process connection            |      | threaded connection G 1/4 Internal thread M6 I                                             |
| Restrictor element integrated |      | no (can be retrofitted)                                                                    |

| Displays / operating elements |                  |                                         |
|-------------------------------|------------------|-----------------------------------------|
| Display                       | Display unit     | 3 x LED, green (bar, psi, kPa)          |
|                               | Switching status | 1 x LED, yellow                         |
|                               | Measured values  | alphanumeric display, red/green 4-digit |

| Remarks       |        |
|---------------|--------|
| Pack quantity | 1 pcs. |

### Electrical connection

Connector: 1 x M12; coding: A; Contacts: gold-plated



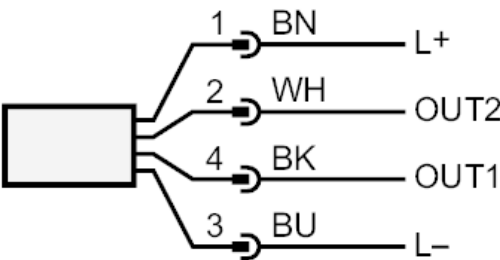
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## Pressure sensor with display

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### Connection



|      |                  |
|------|------------------|
| OUT1 | Switching output |
|      | IO-Link          |
| OUT2 | analog output    |
|      | Core colors :    |
| BK = | black            |
| BN = | brown            |
| BU = | blue             |
| WH = | white            |